

10/579745  
IAP12 Rec'd PCT/PTO 18 MAY 2006

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Inventors: Yutaka MURAKAMI, et al.

Application No.: New PCT National Stage Application

Filed: May 18, 2006

For: MULTI-ANTENNA RECEPTION APPARATUS,  
MULTI-ANTENNA RECEPTION METHOD, MULTI-ANTENNA  
TRANSMISSION APPARATUS AND MULTI-ANTENNA  
COMMUNICATION SYSTEM

INFORMATION DISCLOSURE STATEMENT

Assistant Commissioner of Patents  
Washington, DC 20231

Dear Sir:

Pursuant to Rules 56 and 99, Applicants hereby call the attention of the Patent Office to the art listed on the attached Form PTO 1449. Copies of the art cited in the International Search Report (ISR), which issued by the JPO, are made available to the U.S. examiner in the national stage application, pursuant to MPEP 1893.03(g), and therefore copies of such art are not submitted herewith. The art cited in the ISR is listed on the attached PTO-1449 for an indication of consideration by the examiner. Copies of any other references listed on the PTO-1449, besides those cited in the ISR, are submitted herewith. The following are English equivalents to foreign patent documents; US076/JP781, US419/JP757, US565/JP745, US939/JP838, US151/JP408, US266/JP116 and US766/JP434. The following documents are discussed in the present application;

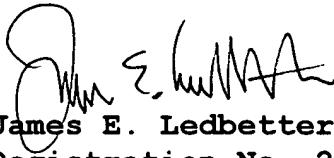
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B. BJORKE, et al. and V. TAROKH, et al., at page 6, line 3; Y. MURAKAMI, et al., at page 105, line 14 et seq.; J. HOU, et al., at page 145, line 14 et seq.; K. MIYASHITA, et al., at page 215, line 2 et seq.

Applicants present this art so that the Patent Office may, in the first instance, determine any relevancy thereof to the presently claimed invention, see Beckman Instruments, Inc. v. Chemtronics, Inc., 439 F.2d 1369, 1380, 165 USPQ 355, 364 (5th Cir. 1970). Also see Patent Office Rules 104 and 106. Applicants respectfully request that this art be expressly considered during the prosecution of this application and made of record herein and appear among the "References Cited" on any patent to issue herefrom.

Respectfully submitted,

  
James E. Ledbetter  
Registration No. 28,732

Date: May 18, 2006

JEL/spp

ATTORNEY DOCKET NO. L9289.06159

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STATEMENT BY APPLICANT

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New PCT Nat'l Stage  
Application

APPLICANT

Yutaka MURAKAMI, et al.

FILING DATE

May 18, 2006

GROUP

Unassigned

## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER							DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	2003	0	2	3	6	0	7	6	12/2003	Brunel			
	2004	0	1	8	1	4	1	9	09/2004	Davis et al.			
	2004	0	0	4	2	5	6	5	03/2004	Garrett			
	2004	0	1	7	4	9	3	9	09/2004	Wang			
		6	8	2	9	1	5	1	12/2004	Elferich et al.			
	2005	0	1	5	2	2	6	6	07/2005	Hwang et al.			
	2005	0	1	9	0	7	6	6	09/2005	Ochiai			

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER							DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
													YES NO	
	2004	0	3	2	7	8	1	01/2004	JP					
	2004	2	8	2	7	5	7	10/2004	JP					
	2004	0	9	6	7	4	5	03/2004	JP					
	2004	2	6	6	8	3	8	09/2004	JP					
	2004	0	2	3	3	9	2	01/2004	JP					
	2003	1	1	1	4	0	8	04/2003	JP					Abstract
	2005	1	4	3	1	1	6	06/2005	JP					Abstract
	2004	3	2	0	4	3	4	11/2004	JP					Abstract

## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

PCT International Search Report dated February 8, 2005.

T. AOKI, et al.; "MIMO Channel ni okeru ZF to MLD o Heiyo shita Group Detection ni Kansuru Kento," 2003 nen The Institute of Electronics, Information and Communication Engineers Tsushin Society Taikai Koen Ronbunshu 1, Sept. 10, 2003, page 393.

Y. ASHINA, et al.; "MIMO Channel Denso ni Mochiiru MLD no Enzanryo Sakugenho no Kento," 2003 Nen The Institute of Electronics, Information and Communication Engineers Sogo Taikai, Communication 1, Mar. 3, 2003, page 625.

E. VITERBO, et al.; "A Universal Lattice Code Decoder for Fading Channels," IEEE Transactions on Information Theory, vol. 45, no. 5, July 1999, pp. 1639-1642.

K. MIYAUCHI, et al.; "New Technique for Generating and Detecting Multilevel Signal Formats," IEEE Transactions on Communications, vol. 24, no. 2, Feb. 1976, pp. 263-267.

H. KAWAI, et al.; "QRM-MLD o Mochiiru OFCDM MIMO Taju ni okeru Shinraido Joho o Mochiiru Tekio Ikinokori Symbol Replica Koho Sentakuho no Tokusei Hyoka," The Institute of Electronics, Information and Communication Engineers Gijutsu Kenkyu Hokoku, vol. 104, no. 186, July 9, 2004, pp. 19-24.

EXAMINER: Initial if citation is considered, draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

FORM PTO-1449 U.S. Department of Commerce Rev. 4/92) Patent and Trademark Office	ATTY. DOCKET NO.	SERIAL NO.
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <small>(Use several sheets if necessary)</small>	<b>L9289.06159</b>	<b>10/579745</b> <b>New PCT Nat'l Stage Application</b>
<b>APPLICANT</b> <b>Yutaka MURAKAMI, et al.</b>	<b>FILING DATE</b> <b>May 18, 2006</b>	<b>GROUP</b> <b>Unassigned</b>

## U.S. PATENT DOCUMENTS.

## FOREIGN PATENT DOCUMENTS

**OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)**

W. JIANG, et al.; "A Novel MIMO Signal Detection Scheme Combining ZF and MLD," IEICE Technical Report, vol. 103, no. 680, Feb. 25, 2004, pp. 1-6.

T. ONIZAWA, et al.; "OFDM/SDM ni okeru Jigen Shukusho o Mochiita ML Kēshutsuki ni Kansuru Ichikento," 2004 nen The Institute of Electronics, Information and Communication Engineers Sogo Taikai, Communication 1, Mar. 8, 2004, page 537.

B. BJERKE, et al.: "Multiple-Antenna Diversity Techniques for Transmission over Fading Channels," IEEE WCNC 1999, Sept. 1999, pp. 1038-1042.

V. TAROKH, et al.; "Space-Time Block Codes from Orthogonal Designs," IEEE Transactions on Information Theory, vol. 45, no. 5, July 1999, pp. 1456-1467.

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Y. MURAKAMI, et al.; "Performance Analysis of MIMO Systems under Rician Fading Channels," The Institute of Electronics, Information and Communication Engineers, Technical Report of IEICE, NS2003-67, RCS2003-90 (07-2003), pp. 1-6 with English Abstract.

K. MIYASHITA, et al.; "Eigenbeam-Space Division Multiplexing (E-SDM) In a MIMO Channel," The Institute of Electronics, Information and Communication Engineers, Technical Report of IEICE, RCS2002-53 (05-2005), pp. 13-18 with English Abstract.

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